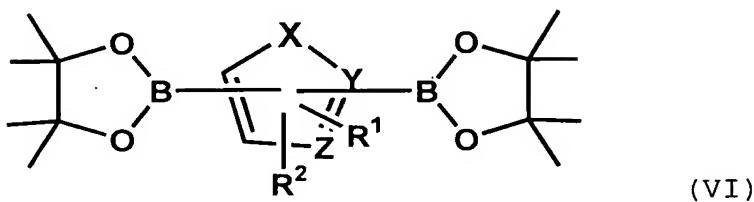
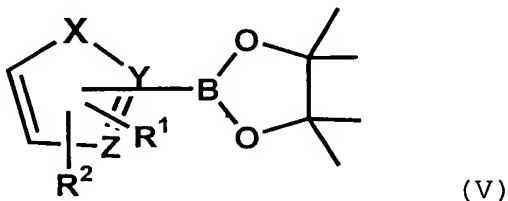


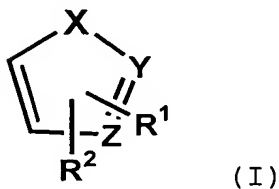
What is claimed is:

1. A production process of a heteroaryl boron compound represented with general formula (V) or (VI):



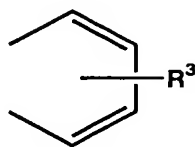
(wherein, X, Y, Z, R¹ and R² are the same as defined below)

comprising: reacting an aromatic heterocyclic compound represented with the following general formula (I):



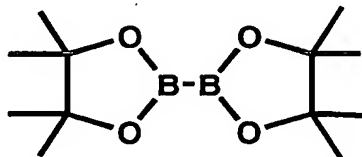
(wherein, X represents an oxygen atom, sulfur atom or an imino group which may have a substituent, Y and Z may be the same or different and respectively represent -CH= or -N=, R¹ and R² may be the same or different and respectively represent a hydrogen atom, linear or branched C₁₋₈ alkyl group, linear or branched C₁₋₈ alkoxy group, nitro group, cyano group, halogenated C₁₋₈ alkyl group, halogen atom, carbamoyl group, C₁₋₈ acyl group, C₁₋₈ alkoxy carbonyl group, amino group which may have a substituent,

or the following general formula (II) in which R^1 and R^2 are adjacent and form a ring:

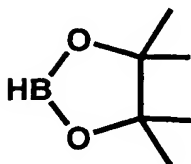


(II)

(wherein, R^3 represents a hydrogen atom, a linear or branched C_{1-8} alkyl group, a linear or branched C_{1-8} alkoxy group, nitro group, cyano group, halogenated C_{1-8} alkyl group, halogen atom, carbamoyl group, C_{1-8} acyl group, C_{1-8} alkoxy carbonyl group or amino group that may have a substituent)) with a boron compound represented with the following general formula (III) or (IV):



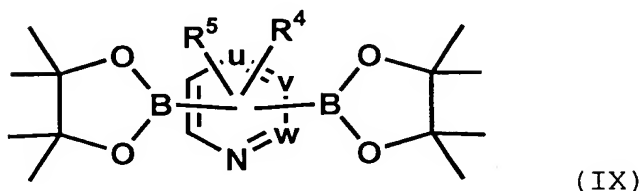
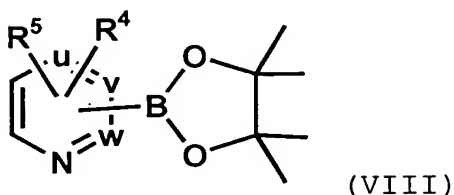
(III)



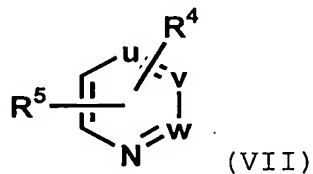
(IV)

in the presence of an iridium-containing catalyst and a ligand.

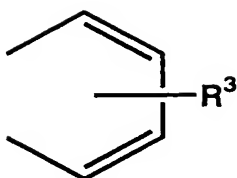
2. A production process of a heteroaryl boron compound represented with general formula (VIII) or (IX):



(wherein, u, v, w, R⁴ and R⁵ are the same as defined below)
 comprising: reacting an aromatic heterocyclic compound represented with the following general formula (VII):

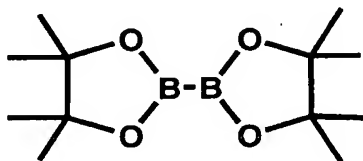


(wherein, u, v and w may be the same or different and respectively represent -CH= or -N=, and R⁴ and R⁵ may be the same or different and respectively represent a hydrogen atom, linear or branched C₁₋₈ alkyl group, linear or branched C₁₋₈ alkoxy group, nitro group, cyano group, halogenated C₁₋₈ alkyl group, halogen atom, carbamoyl group, C₁₋₈ acyl group, C₁₋₈ alkoxy carbonyl group, amino group which may have a substituent, or the following general formula (II) in which R⁴ and R⁵ are adjacent and form a ring:

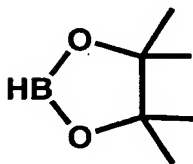


(I I)

(wherein, R^3 represents a hydrogen atom, a linear or branched C_{1-8} alkyl group, linear or branched C_{1-8} alkoxy group, nitro group, cyano group, halogenated C_{1-8} alkyl group, halogen atom, carbamoyl group, C_{1-8} acyl group, C_{1-8} alkoxy carbonyl group or amino group that may have a substituent)) with a boron compound represented with the following general formula (III) or (IV):



(I I I)

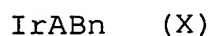


(I V)

in the presence of an iridium-containing catalyst and a ligand.

3. A production process according to claim 1 or claim 2, wherein, the iridium-containing catalyst is that represented with the

following general formula (X):



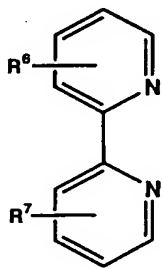
(wherein, A represents a chlorine atom, linear or branched C_{1-8} alkoxy group, hydroxyl group or phenyloxy group which may or may not have a substituent, B represents 1,5-cyclooctadiene or 1-cyclooctene, and n represents 1 or 2.

4. A production process according to claim 3, wherein, A of the iridium-containing catalyst is a methoxy group, B is 1,5-cyclooctadiene and n is 1.

5. A production process according to claim 3, wherein, A of the iridium-containing catalyst is a chlorine atom, B is 1,5-cyclooctadiene and n is 1.

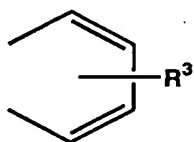
6. A production process according to claim 3, wherein, A of the iridium-containing catalyst is a chlorine atom, B is 1-cyclooctene and n is 2.

7. A production process according to any of claims 1 through 6, wherein, the ligand is represented by the following general formula (XI):



(XI)

(wherein, R^6 and R^7 may be the same or different and respectively represent a hydrogen atom, linear or branched C_{1-8} alkyl group, linear or branched C_{1-8} alkoxy group, nitro group, cyano group, halogenated C_{1-8} alkyl group, halogen atom, carbamoyl group, C_{1-8} acyl group, C_{1-8} alkoxy carbonyl group or amino group which may or may not have a substituent, or the following general formula (II) in which R^6 and R^7 are substituted at position 6 and position 6':



(II)

(wherein, R^3 represents a hydrogen atom, linear or branched C_{1-8} alkyl group, linear or branched C_{1-8} alkoxy group, nitro group, cyano group, halogenated C_{1-8} alkyl group, halogen atom, carbamoyl group, C_{1-8} acyl group, C_{1-8} alkoxy carbonyl group, or amino group which may or may not have a substituent)).

8. A production process according to claim 7, wherein, the ligand is 2,2'-bipyridine.

9. A production process according to claim 7, wherein, the ligand is 4,4'-di-tert-butyl-2,2'-bipyridine.

10. A production process according to any of claims 1 through

9, wherein, the reaction is carried out in the presence of solvent.

11. A production process according to claim 10, wherein, the solvent is a hydrocarbon.